RVOT Systolic Excursion – A Novel Echocardiographic Parameter of Right Ventricular Function

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Background: Right ventricular (RV) function has important prognostic and therapeutic implications. Assessment of RV function using echocardiography is challenging. The aim of this study was to evaluate a new parameter of RV function, right ventricular outflow tract systolic excursion (RVOT_SE).

Methods: RVOT_SE was measured using the parasternal short axis view at the level of the aortic valve and M-Mode echocardiography (Figure). We measured the systolic excursion of the RVOT anterior wall. RVOT_SE was measured in 45 patients (age 63±19y, 26 males) with normal RV function (RV fractional area change (RVFAC)>32% and tricuspid annular plane systolic excursion (TAPSE)>1.5 cm) and 18 patients (age 70±12y, 2 males) with reduced RV function (RVFAC<32% and TAPSE<1.5 cm).

Results: RVFAC was 46±6% in the normal RV group and 22±6% in the reduced RV group (p<0.0001). TAPSE was 2.2±0.4 cm in the normal RV group and 1.0±0.2 cm in the Reduced RV group (p<0.0001). RVOT_SE was 9.5±1.4 mm in the normal RV group and 1.4±1.1 mm in the reduced RV group (p<0.0001). An RVOT_SE< 6 mm identified patients with reduced RV function with a 100% sensitivity and 100% specificity. The figure below shows RVOT_SE measurements in a patient with normal (A) and reduced (B) RV function.

Conclusions: RVOT_SE is a novel, simple, and promising parameter for assessing RV function. Further study is needed to determine the usefulness of RVOT_SE for echocardiographic assessment of RV function.